

Beamline 2-ID-B / SRI-CAT

Scientific focus: Synchrotron instrumentation and techniques, imaging, and coherence

Scientific programs: High-resolution imaging and coherent scattering

Optics & Optical Performance

- high-heat-load mirror M1
29.5 m from source
0.15° incident angle
plane figure
Pt, Rh, Si coatings
- horizontal focusing mirror M2B
31.1 m from source
1.25° incident angle
spherical figure
Pt, Rh, multilayer coatings
- vertical focusing mirror M3B
31.6 m from source
1.25° incident angle
cylindrical figure
Pt, Rh, multilayer coatings
- multilayer spherical grating monochromator
46.8 m from source
0.3–4.0 keV energy range
600, 1200, and 1800 lines/mm gratings
40–4000 monochromaticity ($E/\Delta E$)
- zone plate nanoprobe
60.3 m from source
60 nm x 60 nm focus size
 10^7 – 10^8 ph/sec/0.1% bw flux
- beam properties in station:
350 μ m hor. x 150 μ m vert. FWHM size
50 μ m hor. x 50 μ m vert. FWHM coherent size
 10^{10} – 10^{12} ph/sec flux
samples mounted in air

Detectors

- absolute-calibrated photodiodes
- avalanche photodiodes
- dispersive LEGe detector
- liquid-nitrogen cooled CCD cameras

Beamline Controls and Data Acquisition

- Sun UNIX running EPICS with VME
- PC NT running EPICS CCD camera controller

Beamline Support Equipment/Facilities

- scanning tomographic microscope
- 2-circle goniometer (1.2 m max arm)
- fast scan stage (0.8 nm resolution)
- modular nanoprobe
- temperature-controlled stage (-30–70 °C)

Insertion Device Source Characteristics (nominal)

source	5.5 cm undulator
period	5.50 cm
length	2.47 m
effective K_{\max} (at minimum gap = 10.5 mm)	6.57
energy range 1st harmonic	0.4 - 7.0 keV
energy range 1st - 5th harmonics	0.4 - 25.0 keV
on-axis peak brilliance at 4.0 keV	4.2×10^{18} ph/sec/mrad ² /mm ² /0.1%bw
source size at 4.0 keV \sum_x \sum_y	359 μ m 21 μ m
source divergence at 4.0 keV $\sum_{x'}$ $\sum_{y'}$	24 μ rad 9.0 μ rad